Seasonal distribution of adult lake sturgeon in Namakan Reservoir, Voyageurs National Park, MN

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Introduction

Lake sturgeon (*Ascipencer fulvencens*) are listed as a species of special concern in Minnesota as well as Ontario. A private company in Ontario in collaboration with the Lac La Croix First Nation is proposing to build hydroelectric dams at three sites on the Namakan River, the major spawning tributary for lake sturgeon in the Namakan Reservoir. The dam project could result in fragmentation of spawning habitat in a currently unimpounded and undeveloped river and potentially impact the lake sturgeon population within the reservoir.

Objectives

1. Determine seasonal movement patterns of adult lake sturgeon within Namakan Reservoir.

Study Area

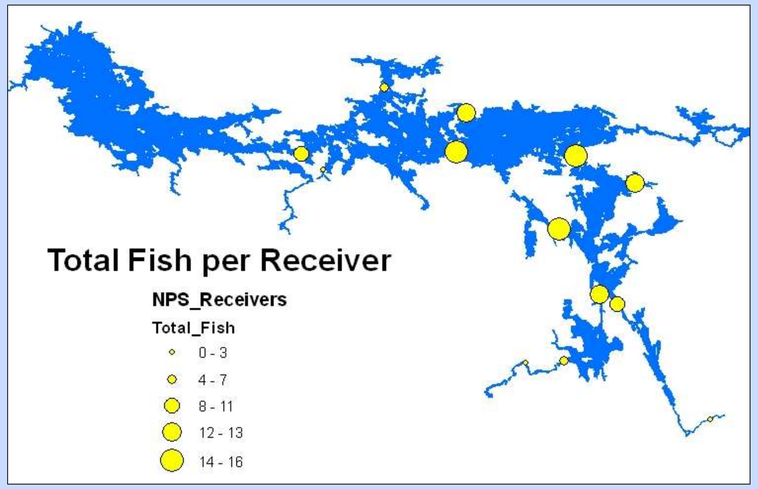
Methods

Lake sturgeon were collected from the Namakan Reservoir system in the spring of 2007 and 2008 prior to spawning. Sixty adult lake sturgeon were implanted with Vemco V16 acoustic transmitters and released back into the reservoir. Movement was monitored using an array of 13 stationary Vemco VR2W receivers covering both US and Canadian waters of Namakan Reservoir and its major tributaries. Movement patterns of lake sturgeon were summarized by week during the spawning period (May and June) and by month through the rest of the year. Frequency of movement and the total number of lake sturgeon detected were compared among receiver locations.

Results

Table 1. Mean total length, girth, and weight of all transmitter implanted fish.

# of Tagged Fish	Mean Total Length (mm)	Mean Girth (mm)	Mean Weight (g)
60	1256 (863 - 1662)	455 (329 - 659)	13.5 (4.25 – 31.1)



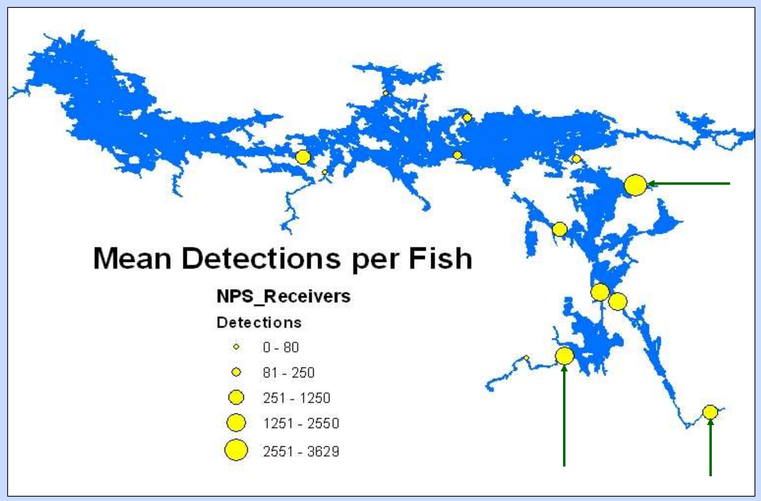


Figure 1. Namakan Reservoir system showing total number of fish detected (top) and mean number of detections per fish (bottom) for each receiver location. Green arrows depict locations where lake sturgeon spent relatively more time as indicated by frequent detection rates.

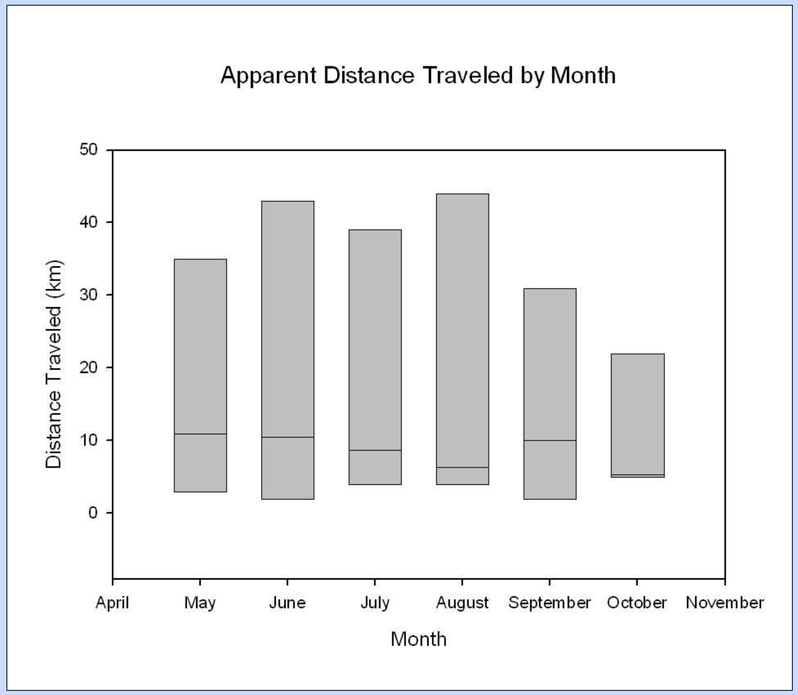


Figure 2. Mean, apparent distance traveled by lake sturgeon by month.

Summary

- 45 of 60 tagged lake sturgeon were located by receivers from May to October, 2008
- Lake sturgeon move freely throughout the reservoir indicating an internationally shared stock.
- Lake sturgeon spent more time (mean detections/fish) near tributary mouths, particularly during May and June (green arrows – Figure 1).
- Apparent movement by lake sturgeon was similar across months. Movement patterns appeared to drop in October, however this may be due to the timing of the receiver download which occurred prior to the end of the month (Figure 2).

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